

**Notice of Allowability**

Application No.

10/561,730

Examiner

Nathan Wiehe

Applicant(s)

CHO ET AL.

Art Unit

3745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to amendment dated 4 December 2006.
2. ☒ The allowed claim(s) is/are 8-12.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☒ All b) ☐ Some\* c) ☐ None of the:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☒ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08),  
Paper No./Mail Date \_\_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit  
of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☒ Interview Summary (PTO-413),  
Paper No./Mail Date 20070301.
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_.

### EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with James Crawford on 1 March 2007.

The application has been amended as follows:

#### IN THE CLAIMS

In Claim 8, line 6, replace " $r_a$ " with  $--(r_a)--$  and replace "area a" with  $--area (a)--$ ,

In Claim 8, line 7, replace " $r_a$ " with  $--(r_a)--$  and replace "radius R" with  $--radius (R)--$ ,

In Claim 8, line 8, replace "area b" with  $--area (b)--$ ,

In Claim 8, line 10, replace "Aout" with  $--(A_{out})--$ , both occurrences,

In Claim 8, line 11, replace "area b" with  $--area (b)--$ ,

In Claim 9, line 2, replace "area b" with  $--area (b)--$  and " $r_a/R$ " with  $--(r_a/R)--$ ,

In Claim 9, line 3, replace "length R" with  $--length (R)--$ ,

In Claim 10, line 2, replace " $r_b$ " with  $--(r_b)--$  and replace "area A" with  $--area (A)--$ ,

In Claim 10, line 3, replace " $r_b$ " with  $--(r_b)--$  and replace "radius R" with  $--radius (R)--$ ,

In Claim 10, line 4, replace "area B" with  $--area (B)--$ ,

Art Unit: 3745

In Claim 10, line 6, replace "Ain" with --(Ain)--,

In Claim 10, line 7, replace "area B" with --area (B)-- and replace " $r_b/R$ " with --( $r_b/R$ )--,

In Claim 10, line 8, replace "length R" with --length (R)-- and replace "Ain" with --(Ain)--,

In Claim 10, line 9, replace "area B" with --area (B)--,

In Claim 11, line 2, replace "Us" with --(Us)--, replace "point P" with --point (P)--, and replace "Uz" with --(Uz)--,

In Claim 11, line 3, replace "point P" with --point (P)--,

In Claim 11, line 4, replace "Ain" with --(Ain)-- and replace "area A" with --area (A)--,

In Claim 11, line 5, replace "Aout" with --(Aout)--,

In Claim 12, line 2, replace " $r_c$ " with --( $r_c$ )-- and replace "length R" with --length (R)--,

In Claim 12, line 3, replace "areas A and B" with --areas (A) and (B)--, and

In Claim 12, line 4, replace "areas a and b." with --areas (a) and (b).--

The above changes to the claims have been made pursuant to MPEP 608.01(m).

#### EXAMINER'S REASONS FOR ALLOWANCE

The following is an examiner's statement of reasons for allowance:

Art Unit: 3745

The instant invention is deemed to be a non-obvious improvement over the invention of U.S. Pat. No. 6,142,733. The improvement comprises the use of a guide blade having an angle of projection that increases toward its tip. In contrast, U.S. Pat. No. 6,142,733 discloses a guide blade with an angle of projection, i.e. pitch angle (E2), which decreases towards its tip. It would not have been obvious to one of ordinary skill in the art to modify the invention of U.S. Pat. No. 6,142,733 to provide a blade with a projection angle increasing toward the tip, since such an arrangement would diminish the desired performance enhancement provided by the decreasing angle arrangement of U.S. Pat. No. 6,142,733.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

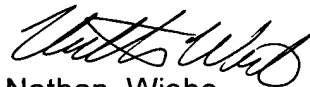
### **CONCLUSION**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nathan Wiehe whose telephone number is (571)272-8648. The examiner can normally be reached on Mon.-Thur. and alternate Fri., 7am-4:30pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Look can be reached on (571)272-4820. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 3745

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Nathan Wiehe  
Examiner  
Art Unit 3745



EDWARD K. LOOK  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 3700

3/3/07